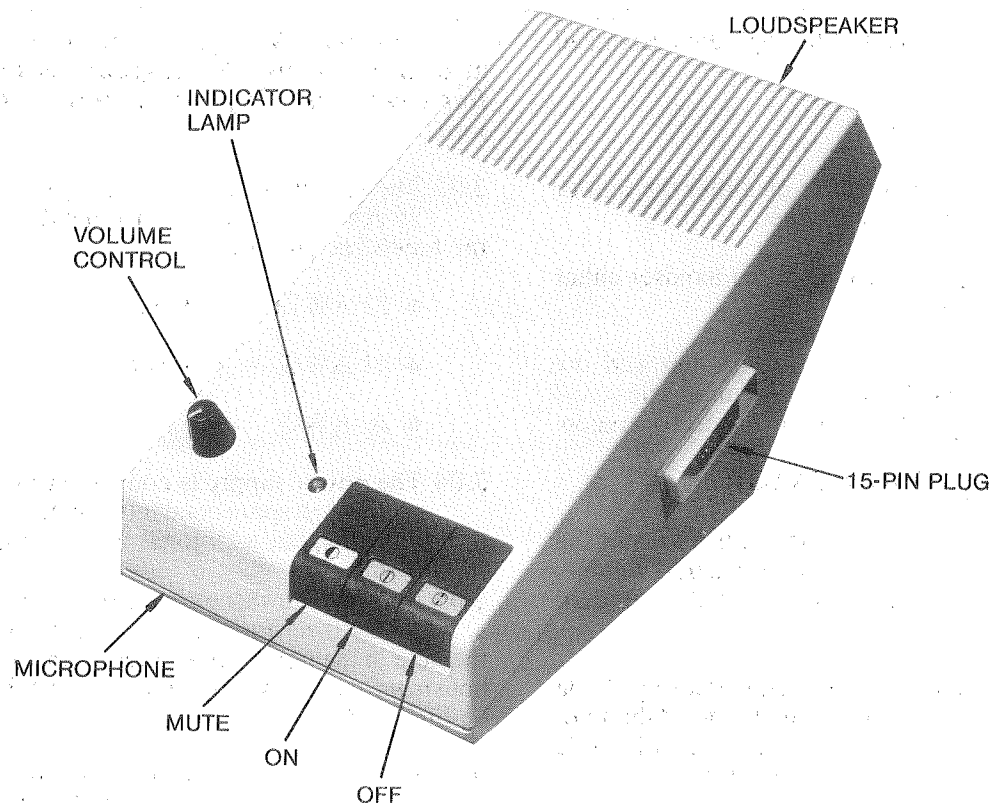


# **"LOGIC\*" HANDSFREE UNIT**

## **QUSIC-TYPE INSTALLATION MANUAL**



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**Reason for Reissue:** This practice is reissued to update the format, including diagrams and text modifications.

## 1. GENERAL

1.01 The LOGIC handsfree unit permits voice-switched, handsfree conversation with LOGIC type telephone sets.

1.02 The unit consists of speech and control circuitry packaged in a high-impact plastic housing which is plug-in compatible with LOGIC telephone sets.

1.03 The unit is designed for desk-top or wall-mounted installations.

1.04 The unit is powered by a separately mounted NE-2012B transformer (or equivalent power supply), which is connected to the unit through the associated telephone set.

1.05 Provision is made for:

- Accepting incoming calls on either the unit or the associated telephone set.
- Dialing outgoing calls with the handset either on-hook or off-hook.
- Transferring calls between the unit and the associated telephone set, with automatic cutoff of the unit when transferring to handset operation.

## 2. CONTROLS AND INDICATOR

2.01 **Volume Control.** This rotary control permits the user to set the loudspeaker to the desired volume. The control does not affect the level of the transmitted signal.

2.02 **Indicator Lamp.** This red light emitting diode (LED) monitors the operating mode of the unit. The lamp is on when the unit is in the transmit mode and off when the unit is in the receiver mode.

2.03 **On Key.** This piano-type key is momentarily depressed when the handset is on-hook to answer an incoming call or before on-hook dialing. The key is held depressed during transfer from handsfree operation, or to hold a call on the unit with both transmission and reception inhibited.

2.04 **Off Key.** This piano-type key is momentarily depressed to terminate a call on the unit.

2.05 **Mute Key.** This piano-type key is held depressed during a call to inhibit transmission with affecting reception.

## 3. INSTALLATION

### POWER CONNECTION

3.01 Each handsfree unit may be powered by an NE-2012B transformer (or equivalent) or, in the case of a multiple installation, by a common power supply. Select a commercial transformer that will supply and open circuit voltage not exceeding 25 V ac, and a fully loaded voltage (at the set terminals) not less than 16 V ac. The capacity of the common power supply is based on 110 mA as the maximum current for each unit.

3.02 Each unit must connect directly to the transformer terminals. Multiple connections must not be made between sets. ***Do not ground either side of the line connecting the power supply to the handsfree unit.***

3.03 The maximum allowable lengths of 22, 24, and 26 AWG cable for connecting the transformer to the handsfree unit are:

- 22 AWG — 400 feet
- 24 AWG — 250 feet
- 26 AWG — 150 feet

3.04 The power supply is connected to the telephone set through spare conductors in the mounting cord or by installing an additional two-conductor cord.

3.05 Remove the faceplate of the LOGIC telephone set by inserting the NS-16750 L3 releaser into the hole in the parting line between the top and bottom housings, and pressing lightly to permit the faceplate to be lifted off.

3.06 Remove the top housing cover by loosening the mounting screws and lifting the cover away from the bottom housing.

3.07 Remove the cable locking slide (under the bottom housing) and insert the spade tips of the 2-conductor mounting cord from the NE-2012B transformer (or equivalent power supply) in the appropriate power terminals in the LOGIC telephone set. Disconnect, insulate and store the mounting cord leads that are on these terminals.

3.08 If the ringer cutoff feature is required on the LOGIC telephone set:

- (1) Disconnect the (BK) ringer lead.
- (2) Connect the (S-BK) handsfree socket lead to the terminal from which the (BK) ringer lead was removed.
- (3) Connect the (BK) ringer lead to the (BK) handsfree socket lead.

3.09 For external station busy lamp or relay control connect the BL lead from the left-hand interconnect to a spare conductor in the mounting cord.

3.10 Operation tests and a fault location guide are provided in Charts 1 and 2, respectively.

#### Desk Mounting

3.11 The interface between the handsfree unit and the LOGIC telephone set consists of a 15-pin connector plug and socket located on matching sides (Fig. 2)

3.12 To connect the unit and the set for a desk-top installation:

- (1) Grasp the set in the right hand, dial forward.
- (2) Grasp the unit in the left hand, controls forwards.
- (3) Tilt the upper edge of the unit towards the upper edge of the set. Bring the set and unit together so that the plug is firmly in the socket and set the coupled unit on the desk top.

#### Wall Mounting

3.13 To connect the unit and set for a wall installation (Fig. 3):

- (1) Mount a QBP7A mounting bracket securely on the wall. (The mounting bracket must be ordered separately.)

(2) Place the set in position on the mounting bracket, slide to the left and secure it with the thumb screw.

(3) Tilt the upper edge of the unit towards the upper edge of the set and bring the unit together with the set so that the plug is firmly in the socket and the unit is seated on the locking pin.

#### 4. OPERATION

4.01 For *best* operation, the following guidelines should be observed.

##### Distance

4.02 The microphone should be within arm's length of the users. This distance may, if necessary, be increased to 6 ft (1.83 m) in normal rooms (i.e., not excessively noisy or reverberant) and to 10 ft (3.05 m) in ideal rooms (i.e., highly sound-absorbing and quiet). At large distances, the transmitted voice will sound hollow at the far-end.

##### Speech Level

4.03 Speech should be at normal conversation level. Low level speech will not operate the voice-switching circuit and consequently will not be transmitted. The level of speech must be raised proportionately as the distance is increased beyond an arm's length.

4.04 The speech level must always be higher than the ambient noise level at the microphone.

##### Courtesy

4.05 The unit represents the far-end party. Speech should be directed toward it. Speech directed away from the unit will sound hollow at the far-end.

4.06 To use the voice switching effectively, wait until the far-end party pauses before replying.

### CHART 1 OPERATION TESTS

This procedure tests all the operating features of an installation.

If a test cannot be completed satisfactorily, refer to the fault location guide (Chart 2).

STEP	PROCEDURE	INDICATION
1	Depress ON key momentarily.	Indicator lamp on, dial tone heard on loudspeaker, indicator lamp off.
2	Rotate volume control clockwise.	Volume of dial tone increases.
3	Dial first digit of test center number.	Dial tone silenced, indicator lamp on.
4	Complete dialing of test center number.	Ringing heard, test center answers.
5	Lift handset.	Speech transferred from loudspeaker to handset, indicator lamp off.
6	Hold ON key depressed, replace handset, release ON key.	Indicator lamp on. Speech transferred from handset to loudspeaker on release of ON key.
7	Ask test center to talk, then hold MUTE key depressed for 20 s and talk.	Speech heard on loudspeaker while key depressed, test center does not hear speech. Operation normal after test.
8	Ask test center to talk, and continue talking while holding ON key depressed for 20 s.	Indicator lamp on but no speech heard by either party. Operation normal after test.
9	Request test center to call back after call terminated, depress OFF key.	Indicator lamp off. No speech on loudspeaker. Ringing heard when test center returns call.
10	Depress line pickup key if telephone set is so equipped. Depress ON key momentarily.	Ringing stops, indicator lamp on. Speech heard on loudspeaker.
11	Operate HOLD key if telephone set is so equipped.	Speech removed from loudspeaker, indicator lamp on, line hold feature (flashing line lamp) operates in telephone set.
12	Operate line pickup key if telephone set is so equipped.	Speech heard on loudspeaker, line hold feature releases in telephone set.
13	Lift handset.	Speech transferred from loudspeaker to handset. Indicator lamp off, handset operation normal.
14	Replace handset.	Call terminated.

## CHART 2 FAULT LOCATION GUIDE

FAULT INDICATION	ACTION
Indicator lamp does not light.	Hold ON key depress: indicator lamp should light. If no light: (1) Check NE-2012B (or equivalent) connection. (2) Check power connections in telephone set. (3) If fault remains it is a circuit defect (Note).
No speech or dial tone on loudspeaker.	Lift handset, check for presence of speech. If speech is present: (1) Check T1 and R1 connection from telephone set to unit. (2) Check that P3 and P4 leads are not shorted. (3) If fault remains it is a circuit defect (Note).
If on-hook dialing is provided and dial tone remains on loudspeaker after dialing first digit.	(1) Check normal handset dialing. (2) Check T1 and R1 connections from telephone set to unit. (If DIGITONE* dial, also check 1R and 1T.) (3) If fault remains it is a relay contact or circuit defect (Note).
Indicator lamp goes off when transmitting, with no received signal present.	This is circuit defect (Note).
Speech remains on loudspeaker, or lamp remains on, when handset is lifted.	(1) Check LK, LK1 and A1 connections in telephone set. (2) If fault remains it is a circuit defect (Note).
Far-end party hears speech with MUTE key depressed.	This is a control key defect (Note).
No received speech heard with MUTE key depressed.	This is a control key defect (Note).
Speech remains on loudspeaker, and audio transmission continues, when ON key is held down.	This is a control key defect (Note).
Indicator lamp remains on, or speech remains in loudspeaker, when OFF key depressed.	This is a control key defect (Note).
If on-hook dialing is provided and dial pulses heard on loudspeaker.	(1) Check P3 and P4 connections in telephone set. (2) If fault remains, it is circuit problem (Note).
HOLD feature does not work when using LOGIC handsfree unit.	(1) Check that hold feature works with handset. (2) Check AG, A1, and LK1 connections in telephone set. (3) If fault remains it is a circuit defect (Note).
<b>Note:</b> If suggested action does not correct the defect, field maintenance should be limited to replacing the unit.	

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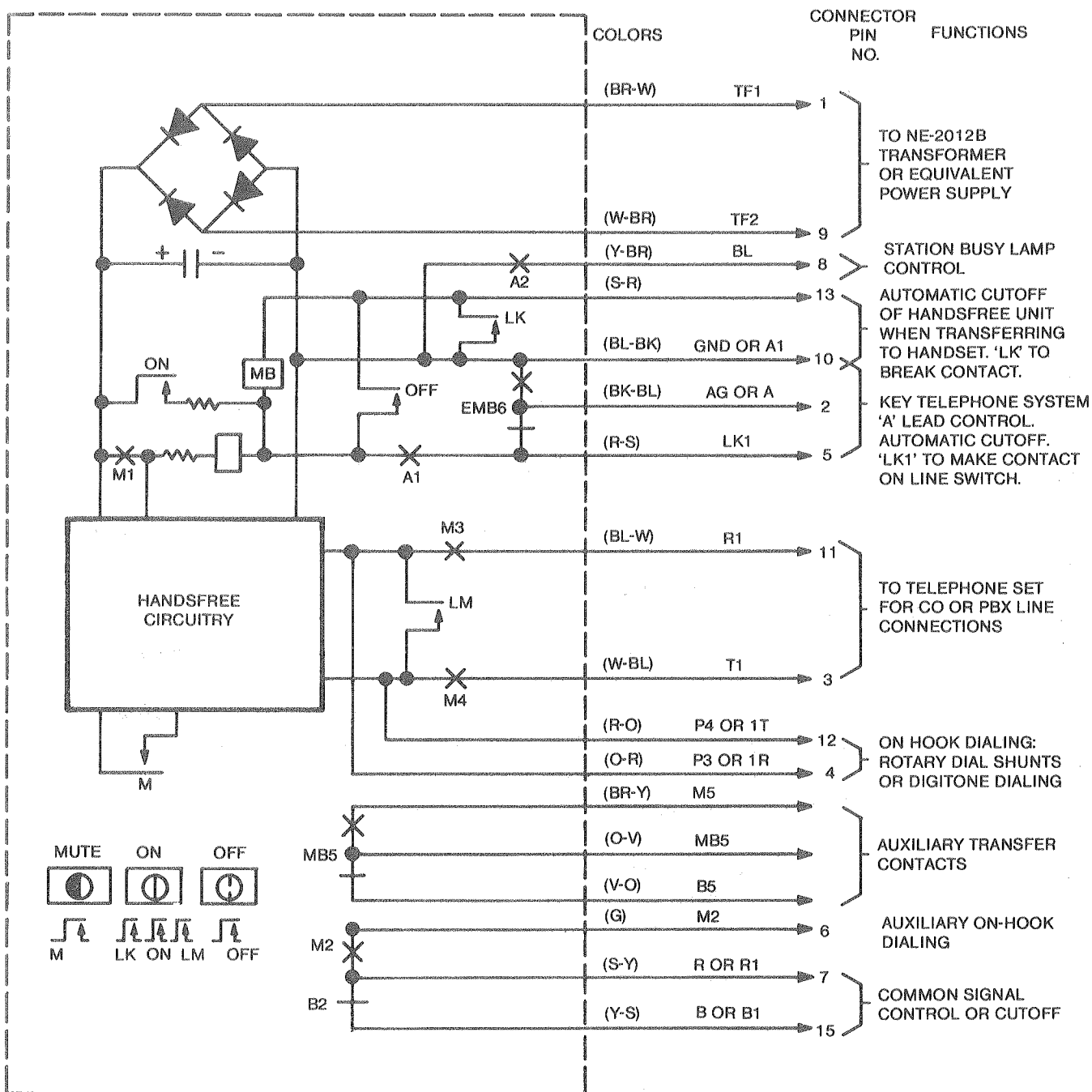
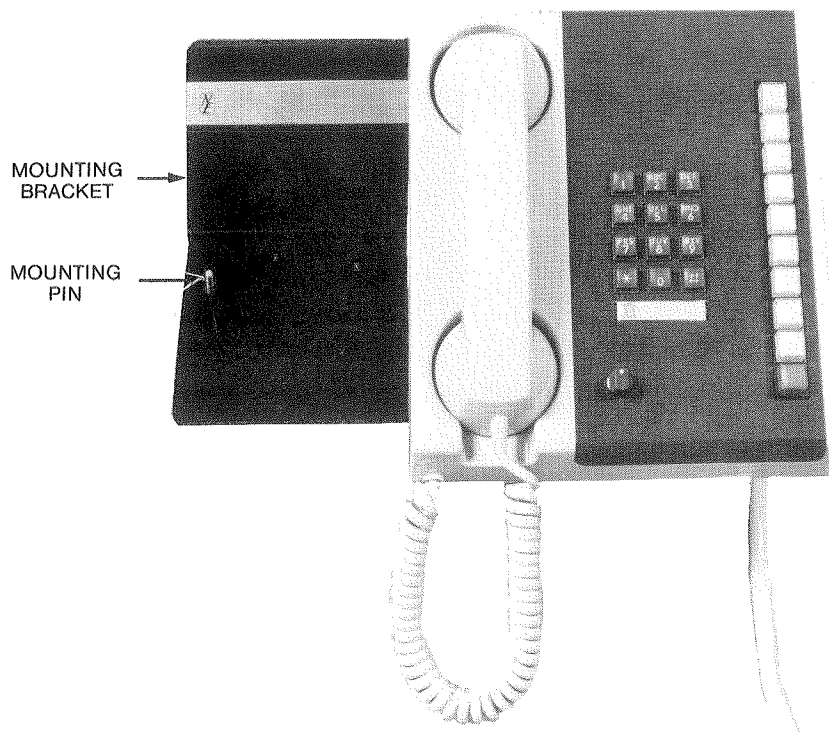


Fig. 1 — Block Schematic of QUS1C LOGIC Handsfree Unit



**Fig. 2 — Desk Mounting the LOGIC Handsfree Unit**



**Fig. 3 — Wall Mounting the LOGIC Handsfree Unit (Using Optional Mounting Bracket)**

